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ABSTRACT

A study of the regional vocational agriculture centers in Connecticut was conducted to determine the following: (1) the need for vocational agriculture (vo-ag) in the state; (2) criteria to be used as guidelines in the future development of vocational agriculture programs; and (3) alternatives for the further development of vocational agriculture in the state. Research factors were identified as relevance factors (community and vo-ag program enrollments, current and potential agricultural and related employment, and graduate placement) or access factors--(program awareness, transportation, and instructional environment). Data were gathered from vo-ag students, instructors, superintendents, and employers through document research, development and implementation of survey instruments, interviews, and researchers' observations. Findings included the following: (1) enrollment--increasing for five years because of greater participation by female students; (2) placement and employment--more than one-third of the vo-ag graduates were furthering their education, while more than half had found employment in agriculture-related fields; employment needs greater than supply were projected for nonfarm agricultural occupations, but fewer farm jobs were forecast; (3) program awareness--public relations techniques were used, but minority recruiting was not perceptible; (4) transportation and tuition did not appear to be problems; and (5) instructional environment--facilities and pupil-teacher ratios were generally perceived as good. Through the data gathered, criteria and strategies for maintenance, expansion, and relocation of programs and development of new programs were prepared. (KC)

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RELEVANCE AND ACCESS: A COMPREHENSIVE EVALUATION OF A STATEWIDE SYSTEM OF VOCATIONAL AGRICULTURE

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INTRODUCTION

Prior to 1955, the program of vocational agriculture in Connecticut was operated in local, one-teacher departments. Recognizing that the educational needs of the student population were not being adequately met, Dr. W. Howard Martin, Teacher Educator, University of Connecticut, and Dr. Walter Jacoby, State Supervisor of Agricultural Education, Connecticut State Department of Education, conceptualized the idea of regional vocational agriculture centers. Legislation which provided for the establishment and operation of regional agriculture centers became effective in 1955. The rationale for this change was that regional centers could draw from a larger clientele, thus serving more students and that a regional center could offer a more specialized curriculum and meet more effectively the diverse needs of students who wanted to pursue their agricultural interests. Also, teachers of vocational agriculture could specialize and teach in their primary area of interest and expertise.

The program of vocational agriculture in Connecticut has made great progress since the regional vo-ag centers were conceptualized and established in the 1950's. Enrollments have increased dramatically, the number of teachers has increased, facilities have been expanded, new facilities have been built, and two urban vo-ag centers are in the construction stage. Since 1960, the number of regional vo-ag centers has increased from 4 to 16; the number of vo-ag instructors has increased from 24 to 63; the number of students has also increased from 622 to 1920 as of June, 1979. Of the 18 vo-ag programs, 16 programs are presently regional vo-ag centers attached to a local or regional high school while two programs remain one-teacher departments.

The philosophy of vocational agriculture that has evolved since the inception of the regional center concept is one of a highly coordinated, integrated program with specialized curriculum in such areas as animal science, plant science, forestry and natural resources, agricultural mechanics, and exploratory agriculture. The monitoring and planning of this philosophical and operational evolution in evaluative terms had been less than systematic over the years. Heretofore, no comprehensive evaluation of the statewide program of vocational agriculture had been undertaken.

The State Consulting Committee on Vocational Agriculture, and other vested groups reflecting agricultural concerns, along with Roger Lawrence, State Supervisor, Vocational Agriculture, and Dr. Alfred J. Mannebach, Teacher Educator, Agricultural Education, University of Connecticut, emphasized the need to evaluate the relevance of the current vo-ag program in Connecticut and to identify and prioritize alternatives for the further development of the program. This need was articulated

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by the State Board of Education in Connecticut's Master Plan for Vocational and Career Education 1979 Revision, Strategy Number 3, which stated that, "The State Board of Education will examine the relevance of existing vocational-agricultural programs to Connecticut's changing economy, and will set future directions for vocational education in agricultural occupations." The study was conducted to collect and compile data for sound decision making at the state level.

OBJECTIVES OF THE STUDY

The major objectives of the study were to:

1. Compile data regarding the need for vocational agriculture in the state;
2. Develop criteria to be used as guidelines in the future development of vocational agriculture programs in the state; and
3. Identify and prioritize the alternatives for the further development of vocational agriculture in the state.

As part of the three major objectives, research factors were identified relating to program trends, the current status of the vo-ag program, and future directions for the statewide vo-ag program. The development of the study evolved within two contexts--relevance and access. Program components that were indentified and considered as relevance factors were: (1) community and vo-ag program enrollments; (2) current and potential agricultural and related agricultural employment and (3) graduate placement. These vo-ag program components were identified as relevance factors because vocational education programs, in general, are measured by the number of students employed and the manpower needs met by providing the program.

Program components that were identified and considered as access factors were: (1) program awareness; (2) transportation; and (3) instructional environment. Even though these vo-ag program factors could be viewed as being pertinent to the identified relevance factors, they were considered as being of primary importance to facilitating the access and participation of students.

Central to the research design of the study were the Project Steering and Advisory Committees. The Project Steering Committee consisted of the State Supervisor for Vocational Agriculture, the Bureau Chief for Vocational Program Planning and Development, the Bureau Chief of Vocational Services, the Project Director, and the Project Coordinator along with the Project Officer for the State Department of Education's Vocational Education Program Improvement - RFP Program. The Advisory Committee was drawn from a cross-section of individuals and groups involved in or concerned with the program of vocational agriculture in Connecticut. These two groups, along with the project staff, were involved in and responsible for the activities and directions taken by the researchers during the course of the project.

METHODS

The primary methods utilized in the research effort were: (1) document analysis; (2) development of measurement instruments; (3) interviews; and (4) the researcher's observation.

Follow-up data, transportation data, trend data were obtained through document analysis. Reports on graduate follow-up and enrollment data compiled annually were reviewed by the project staff and were summarized for use in the project.

Data on current status, and in some cases for the past five years, was incomplete or non-existent. Thus, a major focus of the study was the development of survey instruments and data retrieval mechanisms for generating a quality data base.

The development, implementation, and analysis of survey instruments fell within two category groups. First, survey instruments were developed to be administered to vo-ag students, instructors, and superintendents. Second, a survey instrument was developed to determine employment and projected employment needs for farms and combination farm-agricultural firms which represent the field and related fields of Connecticut's agricultural industry.

A population surveying effort was the chosen method of collecting data on vo-ag students, instructors, and school superintendents. The survey instruments were directly administered in the school by the project staff to all vo-ag students and instructors present on the day of the survey. The superintendents were surveyed through a mailed questionnaire. The populations of interest were 1800 vo-ag students, 63 vo-ag instructors, and 141 local school superintendents.

Survey items were developed within three formats. First, items were developed for the students and instructor surveys to measure their demographic characteristics. Superintendents were asked to rank deterrents to and factors for sending their students to a regional vo-ag program. Second, assessment items were developed based upon the 1972 National Follow-up Study of High School Graduates survey instrument on evaluating the high school program. The follow-up study's rating scale of 1, 2, 3, 4, for each item, with 1 being poor, 2 being fair, 3 being good, and 4 being excellent, was used. Included were six items regarding the vo-ag program and six items related to the students' regular school program. Vo-ag students, instructors, and superintendents were asked to rate the vo-ag program on facility and instructional items.

The third format developed was based on statements that reflected vo-ag program awareness, agricultural employment potential, and vo-ag program logistics. These items were statements phrased both negatively and positively to measure the perception of the respondents to the items using a Likert Type scale of 1, 2, 3, 4, with 1 being strongly disagree, 2 being disagree, 3 being agree, and 4 being strongly agree with the statement. All 141 superintendents were asked to respond to perception items along with vo-ag students and instructors. The Project Steering Committee, Project Advisory Committee, vo-ag teachers, and the project staff reviewed the instrument items in relationship to the research questions and validated the content of the items.

Another measurement instrument was developed to obtain data regarding the employment of agricultural workers in Connecticut. The data that existed on agricultural labor statistics was not current in portraying the field or related fields of agriculture. Available Labor Department statistics focused on farm employment. Mannebach's (1975) Survey of Employment Opportunities and Community Resources Having Implications for Programs of Vocational Agriculture in Connecticut

delineated three major areas of businesses that employ individuals who need knowledge and skills in agriculture as Farm, Combination Farm, and Agricultural Firms. The Project Steering and Advisory Committees, along with the project staff, recognized the need to provide a sound data base of agricultural employment for both current and projected manpower needs which could be related to vo-ag program relevance.

Since several items of information were needed from employers on labor statistics, and instrument was developed to elicit a statewide picture of employment and training needs. Two populations of interest were identified and surveyed through a mailed questionnaire. The populations were categorized as farm and combination farm/agricultural firm. Farm Bureau members comprised the population of farmers surveyed. The researchers randomly selected 280 Farm Bureau members out of the population of 2529 which represented a 11 percent sample size. From the sample, 180 responses to the survey were received for a response rate of 64 percent. Of the 180 responses, 132 were usable. The remaining 48 responses indicated, in one form or another, that they were not actively engaged in farming. This number represented 26 percent of the survey responses. Both sample and population estimates were made with projections being calculated as being accurate within a plus or minus 6.7 percent.

There were 3862 combination farm/agricultural firms which fit into the categories listed in the descriptions as employing people who need agricultural knowledge and skills. From the population of 3862, a random sample of 585 firms were conducted. Six percent of these employers were out of business, thus the sample size was 565 combination farm/agricultural firms. Of the 565 firms surveyed, 355 responses were received. This number represented a 63 percent rate of response. Of the 355 responses, 320 were usable for analysis purposes. Population estimation of employment based on employers responses were made with projections being calculated as being accurate within plus or minus 5.3 percent.

The use of interviews was a third method used in the study. Information on admissions and recruitment procedures and information regarding adult education offerings in agriculture were collected by interviews with the vocational agriculture department heads. Members of the project staff conducted the interviews during the visit to the schools.

A fourth method used in the project was the observations of the researchers. Observations made throughout the study were reflected in the conclusions reached and the alternatives and priorities developed.

RESULTS

The findings presented below were synthesized from the large amount of more specific data found in the two original reports; Volume I entitled "Connecticut's Vocational Agriculture Program: Program Analysis" and Volume II entitled "Connecticut's Vocational Agriculture Program: Future Directions for the 80's." Both reports were completed in June, 1980.

ENROLLMENTS

Community Vo-Ag Enrollments

Connecticut vo-ag enrollments had an inverse relationship to secondary enrollments by Community Type.

The majority of secondary enrollments existed in cities (large, fringe, and medium) while the majority of vo-ag enrollments exist in small towns (suburban and rural).

The pattern of vo-ag representation for the majority of cities (large, fringe, and medium) had a negative community vo-ag representation value.

Approximately 50% of all communities in Connecticut had a negative vo-ag representation as evidenced by the formula used.

Sixteen of 169 communities had zero vo-ag enrollments from 1974-1979.

There has been an increase in the number of communities who send students to a vo-ag program from 1974-1979.

While the trend in vo-ag enrollments has increased, the secondary enrollment for a majority of communities has decreased.

Vo-Ag Program Enrollments Trends

Vo-ag enrollments for the five-year period have shown a growth trend due to an increase in female enrollments.

There was a slight downward trend in vo-ag enrollments from 1979-1980.

A number of communities operating vo-ag programs had a decrease in their local school vo-ag enrollments.

Two urban vo-ag programs (Hartford and Stamford) were developed during the five-year period which aided the growth.

Female vo-ag enrollments have grown over the trend period. Females composed 41 percent of secondary vo-ag program enrollment.

Male enrollments have been relatively stable over the trend period.

The growth in the percentage female vo-ag students in Connecticut is dramatically greater than the nation as a whole.

Female and male vo-ag participation is moving towards parity.

Student/Instructor Demography

There was a lack of minority representation in vo-ag programs for both student and instructor populations.

Female student participation was nearing a representative compaison to the regular school population.

A total of 26 percent of the students answered "yes" when asked "Do you live on a farm?"

There was a lack of female vo-ag instructor representation within vo-ag programs.

Vo-ag instructor job retention in vo-ag programs is high.

PLACEMENT AND EMPLOYMENT

Graduate Follow-Up

Vo-ag graduates have a high rate of furthering their education on a full-time basis. Follow-up studies revealed that over one-third of the vo-ag graduates continued their education on a full time basis.

Over 55% of vo-ag graduates were employed in the fields or related fields of agriculture, or unrelated occupational areas based upon the total number of graduates for the trend period.

The diversification and generic aspects of vo-ag curriculum and skill development gives the vo-ag student greater career oppurtunity than other programs of secondary vocational education.

During the trend period, placement categories on employment and post-secondary education had a positive trend.

Longitudinal measures are needed to give a more reflective picture of agricultural and related agricultural employment of vo-ag graduates.

Agricultural Employment - Combination Farm/Agricultural Firm

Approximately 70% of full-time employees and 54% of part-time employees in agricultural firms in Connecticut were males.

The majority of combination farm/agricultural firms have a major product or service emphasis in plant or animal science.

Approximately 31% of full-time employees and 52% of part-time employees in agricultural firms use or could utilize agricultural knowledge or skills in performing their duties.

There will be a continued growth in the number of individuals needing knowledge and skills to meet non-farm manpower needs.

A gap exists between current vo-ag program graduate levels and projected manpower needs. More graduates are needed to meet manpower needs.

The projected number of new employees needed in agricultural firms by 1985 is approximately 16,500 full-time and 11,400 part-time, of which approximately 5100 full-time and 6500 part-time employees will be utilizing knowledge or skills in agriculture.

Agricultural Employment - Farm

Approximately 76% of full-time employees and 68% of part-time employees on farms in Connecticut are males.

Approximately 50% of full-time employees and 54% of part-time employees on farms use or could utilize agricultural knowledge or skills in performing their duties. This full-time percentage of 50% is substantially higher than the reported figure of full-time employees in 1974 farms.

Farm employment, in general, has slightly decreased over the past five years and is a trend that will continue.

The projected number of new employees needed on farms by 1985 is approximately 2000 full-time and 3500 part-time, of which approximately 1100 full-time and 2000 part-time employees will need agricultural knowledge and skills.

PROGRAM AWARENESS

Admissions and Recruitment

All vo-ag programs had local admissions procedures and/or policy which delineates admissions instructions for prospective students.

All vo-ag programs utilized an admissions form and student interview during the admissions process.

The majority of vo-ag programs did not rank or rate individual applicants but utilized the student's interest and interviews as the major basis for applicant selection.

The majority of vo-ag programs used a variety of public relations activities to inform the public and prospective students within the limits of their program budgets.

The quality and depth of recruitment outreach, especially to special needs and minority groups, were suspect.

Sending school guidance personnel and administrators were the key link in the admissions/recruitment practices for enrolling local school district students into the vo-ag program.

Statewide admissions and recruitment guidelines for vo-ag programs were limited to state regulations which are not comprehensive in scope.

Seventy-nine percent of those students applying for admissions to existing regional vo-ag centers in FY79-80 were accepted. Of the students accepted for enrollment, 57% were male and 43% were female.

Superintendents Perceptions

Student's interest is the most important factor considered when enrolling students in a regional vo-ag programs. Other important factors include the student's ability to perform, the quality of the vo-ag program, and the student's academic record.

Cost factors, such as transportation and tuition, are not important factors considered when enrolling students in a regional vo-ag program.

Lack of community orientation and student awareness to the vo-ag program are the greatest deterrents to participation of high school students in a regional vo-ag program.

Tuition costs for the vo-ag program and decline in high school enrollments are the least deterrents to participation of high school students in a regional vo-ag program.

TRANSPORTATION AND TUITION

Transportation

The term nearest within P. A. 79-128, Section 10-97, subpart (c), concerning transportation reimbursement for local or regional school districts sending students to a regional vo-ag center needs to be defined in a clear and precise manner.

Most local or regional school districts send students to a regional vo-ag center which provides the student with vocational agriculture educational opportunity within the most effective transportation pattern possible.

The majority of local or regional school districts send students to a regional vo-ag center which is geographically nearest to the local school district.

Upon regulatory or legislatively developed interpretation and definition of the term nearest from sending school districts to vo-ag centers, redistricting of current vo-ag service areas would be warranted to conform to law for full transportation reimbursement.

The student's responses on transportation pattern items are reliable and constitute a quality data base.

The majority of students do not perceive transportation to and from a regional vo-ag program as a problem.

The average time and distance for the majority of vo-ag students is reasonable and realistic within the current pattern for communities sending students to a regional vo-ag program.

The majority of students who perceive transportation as a problem to and from a regional vo-ag program travel further (21 or more miles) and spend more time (45 minutes or more) in travelling than do other students.

There is a need to develop alternatives for those students who travel greater distances and spend greater time in travel to regional vo-ag programs, especially those students who travel 21 or more miles and spend 45 minutes or more in travel time.

Tuition

The mean tuition cost (per pupil cost) and distribution of per pupil cost for regional vo-ag centers and local sending school districts is comparable and normal.

Tuition costs would not appear to be a major barrier to participation of local sending school district students.

A study is necessary to ascertain the fiscal impact of P. A. 79-128 and the vo-ag tuition charge relationship to local community per pupil cost.

INSTRUCTIONAL ENVIRONMENT

Secondary Vo-Ag Curriculum

Exploratory agriculture courses are usually taken in the first two years of the vocational agriculture student's program.

Of the other four curriculum areas, the area with the highest enrollment is animal science, followed by plant science.

The proportion of vocational agriculture students being trained in each curriculum area is representative of present employment potential and projected future employment potential in agricultural enterprises related to these curriculum areas.

Secondary Vo-Ag Program Assessment and Perceptions

Vo-ag superintendents and secondary superintendents assess and perceive the vo-ag program factors in a more highly positive manner than vo-ag students and instructors.

All three groups have the same positive direction of responses for all assessment and perception items except vo-ag library processes.

From the assessment and perceptions of the three groups, the vo-ag program reflects a positive teacher/student interaction in instructional processes which takes place in sound facilities.

Vo-Ag Program Size

Student-to-teacher classroom size of 15:1 is an excellent benchmark for vo-ag instructional size.

The larger the student enrollment, staff, and facility size, the higher the student rating on vo-ag program factors.

Vo-ag programs that are highly rated are programs with at least three or more staff members, multiple facilities, including a greenhouse, shop area, outdoor resource area, and contain two or more classrooms.

A number of vo-ag programs currently do not meet the program size to staff size requirements of 35:1.

The 35:1 ratio standard does not appear to be a major hindrance in providing quality educational experiences for vo-ag students.

There are several vo-ag programs based upon 35:1 and 15:1 ratios that could expand their services to more students.

Adult Education in Agriculture Program

The majority of vo-ag programs do not offer adult education programs.

The majority of vo-ag programs that provide adult education are doing so in a minimal manner.

Staff, money, and time are perceived as the major barriers in the development of effective programs of adult vocational agriculture.

As perceived by farm and combination farm/firm employers, there is a substantial group of employees who need and would participate in adult vo-ag programs.

The curriculum areas of animal science and plant science have the greatest concentration of potential adult students.

CRITERIA FOR VO-AG PROGRAM GUIDELINES

A major objective of the study was to develop criteria to be used as guidelines in the future development of vocational agriculture in Connecticut. During the course of the project, various groups were involved in the developmental phases of the study. A Project Steering Committee, consisting of Connecticut State Department of Education personnel in Vocational Education, along with a Project Advisory Committee, drawn from a cross-section of individuals and groups involved in or concerned with vocational agriculture, and vo-ag instructors were utilized to provide input and direction in developing criteria that would serve as appropriate guidelines for planning future vo-ag program directions. The input from the above groups; the observations of the project staff, and the research findings were synthesized into the final set of criteria.

The identified criteria were stated within a question format as follows:

Will a planned direction for the vocational agriculture program:

1. Equalize the educational opportunity for communities not being serviced with vo-ag programs?
2. Equalize the educational opportunity for communities being marginally serviced by vo-ag programs?
3. Equalize the educational opportunity for minority populations?
4. Equalize the educational opportunity for handicapped groups?
5. Improve the quality of the vo-ag instructional environment?

6. Meet regional and state manpower needs in the field and related fields of agriculture?
7. Provide employment potential for students in the field and related fields of agriculture?
8. Have the support of farmers and agribusinesses in the area?
9. Facilitate efficient use of transportation patterns?

Strategy Priorities

Strategies for maintenance of programs, expansion of programs, relocation of programs and the development of new regional programs of vocational agriculture within the state were prepared. Based upon the findings of the study, it was recommended that nine programs maintain their current level of program offerings at the secondary level; that two programs be relocated; that seven programs be expanded; and that six new regional vocational agriculture programs be developed. Recommendations regarding the adult education program in agrucluture included the maintenance of five programs, the expansion of five programs, and the development of fourteen new programs. In addition, recommendations regarding each of the relevance and access issues were developed. Ten year cost estimated regarding the various alternatives were prepared. Alternatives and priorities regarding the implementation of the strategies were prepared and will serve as a basis for the further development of viable vo-ag programs in the future.

SUMMARY

The study will serve as a basis for the further development of viable vo-ag programs for those individuals who want, need and can profit from vocational agriculture instruction. Further, the study provides decision makers with key data and information needed to make sound judgements about the program in the future. The study also serves as a model for comprehensive program evaluation focused on important relevance and access issues.

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